

fication occupies a very humble place among biological efforts and that all systems must of necessity be tentative and temporary, soon to be superseded by others, the results of a larger knowledge gained by the contemplation of a wider horizon." Thus the reader must not expect to find any more in this respect than exists in the table of "Contents" at the commencement of the 'Monograph.'

Still, after some suggestions towards the attainment of this object, the author states that "there is no more hopeful field of labour for a young naturalist seeking for 'new worlds to conquer' than that provided by the Freshwater Sponges."

Truly there is much yet to be done in spongology generally, both specifically and physiologically, towards classification before it can be put on a par with botany in these respects; but who can expect this to be otherwise with a science that is hardly a century old?

The text is accompanied by twelve plates, the numerous representations in which, with copious explanations, are, in point of exactness, in keeping with all that has preceded. They are not on the *scale* which commands attention from its great size (that is, like the figures over a caravan at a country fair), but, on the contrary, so small and unpretending as almost to require a lens for the examination of their detail, whose minuteness and truthfulness to nature will then be found to present objects of much admiration.

We congratulate Mr. Potts on having produced a 'Monograph' which is characterized throughout by modesty, ability, and, pre-eminently, practical utility.

*A Manual of Zoology for the Use of Students, with a General Introduction on the Principles of Zoology.* By HENRY ALLEYNE NICHOLSON, M.D. &c. Seventh Edition, rewritten and enlarged. 8vo. Blackwood: Edinburgh and London, 1887.

WE have had occasion so frequently to call attention to the publication of successive editions of this 'Manual,' that it would be hardly necessary to do more than to notice its reappearance, were it not that the author has made so many additions and alterations in the present edition as to place the book upon a new footing. It is, as announced on its titlepage, to a great extent rewritten, and is very considerably enlarged; and an examination of the contents will show that the author's labours have not been thrown away, as the book is a very great improvement upon its predecessors.

Of course the general treatment of the subject is the same as before, and the work is cast in the same shape; but throughout we find evidence of the influence of the most recent additions to the literature of scientific zoology. This is marked not only in the systematic portion of the book, but also in the general introduction, in which the author has touched, briefly indeed, upon all the more important points which have come to the front of late years, espe-

cially those raised by the promulgation of the Darwinistic theory of evolution.

In connexion with the system of classification adopted we may remark that Dr. Nicholson has separated the Sponges from the Protozoa, but without uniting them with any recognized group of the Metazoa—he treats them “as a separate subkingdom under the name of Porifera.” In this course, considering the difficulties surrounding all attempts to deal with the Sponges, we think he is in the right, judging from our present lights, and he carefully indicates some of the difficulties in question arising from the peculiarities of certain constituent elements of the sponge-body.

The Cœlenterata are treated in considerable detail and evidently with reference to recent investigations, especially those of Prof. Moseley on the Hydrocorallinæ. It may be noted in passing that Dr. Nicholson cannot be charged with taking part in that “conspiracy of silence” upon which the Duke of Argyll descanted so eloquently in a recent number of ‘Nature.’ He even says that the recent researches of “Semper, Murray, Guppy, &c. have shown that Darwin’s theory cannot be accepted as a universal explanation of the mode of origin of atolls and barrier-reefs, even if it be partially true.”

Prof. Huxley’s subkingdom Annuloida is given up by Prof. Nicholson, who, however, retains the class Scolecida, as including the whole of the Entozoa, the Turbellaria, the free Nematoid worms, and the Rotifera—a somewhat incongruous assemblage, the principal distinctive characters of which are the presence of a water-vascular system and the absence of a ventral chain of ganglia. The remainder of the Annulosa are divided into Anarthropoda and Arthropoda, and the classification adopted is that generally employed by systematic zoologists. The weakest portion of this section, and, indeed, of the whole book, seems to us to be that treating of the Insecta; but this is a reproach which may be made to most text-books of zoology. The division Molluscoidea is still retained for the Brachiopoda and Polyzoa, the Tunicata being inserted between the Mollusca and Vertebrata. The latter are treated at very considerable length, occupying three eighths of the systematic portion of the book; but the space bestowed upon them is certainly well employed, and this section furnishes one of the best guides to the structure and classification of vertebrate animals with which we are acquainted. In saying this we have no intention of making a comparison of the vertebrate and invertebrate sections to the disadvantage of the latter—the greater complexity of the machinery of life in the Vertebrata necessitates their being treated at greater length than their invertebrate fellows, and this is especially the case when the book to be written is intended especially for the use of students.

This Manual is in fact, to a great extent, a treatise on the morphology of animals. References to habits and mode of life are of necessity cut down to the smallest possible dimensions; but the author carefully indicates the general distribution of the representatives of the various groups in time and space, and of course some

notice of the living relations of the animals to each other and the outer world is indispensable in many cases. The book is an admirable guide for the zoological student, and its value is greatly increased by the copious lists of authorities given at the end of each chapter and by the copious glossary with which it terminates.

We have yet to say a few words upon the illustrations of the work. These, as in former editions, are all woodcuts; but their number has been greatly increased in the present issue, the new figures being for the most part derived from the most important of the many valuable memoirs which have appeared during the last few years. The execution of these new figures is admirable, and as they have been most judiciously selected they add greatly to the value of the book.

*Living Lights; a Popular Account of Phosphorescent Animals and Vegetables.* By C. F. HOLDER. London, 1887.

WE must own to being a little disappointed with Mr. Holder's last book, for it bears obvious marks of haste in the structure of many of the sentences and the form in which scientific terms have been allowed to pass the "reader's" eye. However, we do not suppose that these failings will strike the kind of reader whom we imagine Mr. Holder wishes to attract. The book is strictly a popular one, the "systematic portions necessary to the student," which have been "placed in an appendix," being very unequal: to whom, pray, is the information addressed that *Ophiura* is so called "on account of the resemblance to snakes in its arms"? The scientific man does not want it, and if the schoolboy does he will wonder whether the author means really that *Virgularia* is derived from *vira*, a rod; for the schoolboy (happy youth!) knows not of misprints. The "Neiridæ and Eunicedæ" are not "genera of the group Annelida." The Bibliography is simply shocking—*e. g.* "Ehrenberg. Das Leuchten des Meeres. Abhandlung," or "Leydig, Professor. Bonn, Germany. Phosphorescence of Fishes. 10 plates;" but this, perhaps, is the gem for an English book, "1875. Darwin. Voyage d'un Naturaliste autour du Monde. Paris."

The illustrations are fairly good, and we hope Mr. Holder or his publishers have made some pecuniary recompense to those who first produced them, for no acknowledgment of assistance is made in the book itself.

The book is hardly one for the ordinary readers of the 'Annals;' but those who are blessed with children will probably find that they think the writer in their father's journal a great deal too severe.